ther by ligament, and forming a tube communicating from one extremity of the spine to the other.

This species of intervertebral joint, which thus appears common to the fish tribe, is not found to obtain in the whales, as their structure in this, as in many other respects, is the same as that of quadrupeds, but is more distinctly visible, from the vast size of the parts. In them the intervertebral substance is arranged in concentric circles, connected by transverse fibres, the external layers being very firm and compact; but the interior become successively softer, till in the centre there is a soft pliant substance, more like jelly than an organized body, corresponding in its use to the incompressible fluid in fish.

In the bullock, sheep, deer, monkey, and man, the structure corresponds with that of the whale; but in the hog and rabbit a cavity was observed, with a smooth internal surface extending through half the diameter of the vertebræ; so that the structure in these animals imitates that of fishes, though not for any obvious purpose.

In the alligator the several joints are regularly articulated with capsular ligaments, and are lubricated with synovia. In the snake there is a regular ball and socket joint between every two vertebræ; so that the means employed for the motion of the back-bone in different animals, comprehends almost every species of joint.

Mr. Home's paper has annexed to it an appendix, by Mr. William Brande, giving an account of the chemical analysis of the fluid contained in the intervertebral cavity of the *Squalus maximus*.

Its specific gravity was found to be ·1027. It was not coagulated by heat.

No precipitation was occasioned by infusion of galls, or of catechu; nor was any change produced by alcohol.

But oxymuriate of mercury, muriate of tin, nitrate of silver, and acetate of lead, threw down copious precipitates.

From the effect of these re-agents, it appears to Mr. Brande, that the fluid contains neither gelatine nor albumen; but when the fluid was evaporated to half its bulk, pellicles began to form on the surface, indicating the presence of a variety of animal matter, which the author considers as *mucus* or *mucilage*, but which, under certain circumstances of evaporation, is capable of being converted into a modification of gelatine or albumen.

On Platina and native Palladium from Brazil. *By* William Hyde Wollaston, *M.D. Sec. R.S.* Read March 22, 1809. [*Phil. Trans.* 1809, *p.* 189.]

Until a portion of platina was lately discovered by M. Vauquelin, in some silver ores from Estremadura, the whole of the platina known in Europe was derived from the Spanish possessions in South America, and had very uniformly the same appearance, differing solely in the magnitude of the grains.

A third variety having lately been received from Brazil, the author

thought it deserved particular examination, although the quantity which he could obtain was too small for accurate analysis.

The appearance of this mineral is whiter than Peruvian platina; the grains are rougher and more angular, being evidently fragments of larger masses, very little worn at their surfaces. When examined by solution and precipitation, the greatest part of the grains appeared to be platina nearly pure, as they are free from iron, which forms a considerable part of the Peruvian ore; and apparently free from the several metals, which have within these few years been discovered in that mineral; but they contain, on the contrary, a small quantity of gold, which is not contained in the grains of Peruvian platina.

The author discovered also, among the grains of native platina, a few fragments of native palladium, which he describes as resembling, in the whiteness of their colour, the grains of platina, but differing from them in presenting an appearance of fibres diverging from one extremity. These grains are readily detected by their solubility, and by the red colour of the solution: that they consisted of palladium, was proved by precipitation with prussiate of mercury, or green sulphate of iron, as well as by their fusibility by assistance of sulphur. It is remarked, however, that these grains are not absolutely pure, but contain a very small quantity of platina, which, by its redness when precipitated, seems to be contaminated by iridium.

On a native Arseniate of Lead. By the Rev. William Gregor. *Communicated by* Charles Hatchett, *Esq. F.R.S.* Read April 13, 1809. [*Phil. Trans.* 1809, *p.* 195.]

The mineral of which this account is given was raised in a very rich copper-mine called Huel-Unity, in the parish of Gwennap, having been found at the depth of fifty fathoms, at the junction of two small lodes or veins. This ore is mixed with some native copper, very rich gray copper, and black copper ore.

It crystallizes in the form of a hexahedral prism, terminated in general by a plane, but sometimes by a taper six-sided pyramid. The colour is generally a shade of yellow, but sometimes wine-yellow, like the Brazilian topaz, and sometimes as dark as brown sugar-candy. The hardness varies, and is sometimes sufficient to scratch flint-glass. The specific gravity at 50° temperature is 6·41.

Being exposed to heat upon a gold spoon, it melts into a brownish-yellow mass, and remains unaltered in a state of ignition. But if heated upon charcoal, it is rapidly decomposed, arsenical vapours being extricated, while the lead is reduced to its metallic state.

The mode of analysis adopted by the author consisted in reducing the ore to a fine powder, and decomposing it by a solution of pure potash, with due precaution to avoid the solution of lead by the alkali along with the arsenic acid. The arseniate of potash was decomposed by nitrate of lead, which gave an arseniate of lead, consisting of known proportions, from which the quantity of arsenic acid in the ore was found to be 26·4 per cent.